

## CLAIMS

What is claimed is:

1. A life sciences laboratory system, comprising:

at least one networked computer system that defines a virtual research environment accessible to a user through a portal associated with said networked computer system, said system providing a workspace wherein the user can store and organize information relating to life sciences research;

said virtual research environment having a data coupling mechanism by which the user designates a set of user-specified data for bioinformatics processing;

said networked computer system including at least one processor to perform bioinformatics services upon said user-specified data.

2. The system of claim 1, further comprising a workflow system operable to allow a user to prescribe and track the performance of a series of steps associated with that user's life sciences research.

3. The system of claim 1, further comprising an index that organizes said life sciences information into hierarchical levels and defines links among related information across said hierarchical levels.

4. The system of claim 1, further comprising a virtual laboratory equipment interface whereby said user may interact with selected ones of a plurality of different life sciences laboratory equipment.

5. The system of claim 1, further comprising an access control system adapted to maintain privacy of the workspace by restricting access of the workspace to one or more designated users.

6. The system of claim 1, further comprising a data coupling mechanism adapted to allow a user to transfer data between the workspace and a life sciences related instrument.

7. The system of claim 1, further comprising:  
a catalog of life sciences related consumptibles linked in memory to related portions of genomic data; and  
a purchasing subsystem presenting portions of said catalog to users for potential purchase of consumptibles identified therein coincident with access by the users of correspondingly related portions of genomic data.

8. A virtual community system to facilitate the sharing of life sciences information, comprising:

at least one networked computer system that defines a virtual community accessible by a plurality of users and that provides information linking services whereby said users may provide references to life sciences information;

an index service provider associated with said virtual community that coordinates said provided references to life sciences information based on an index that organizes said life sciences information into hierarchical levels and defines links among related information across said hierarchical levels.

9. A life sciences network portal system, comprising:

at least one networked computer system that defines a portal through which users may access said networked computer system to conduct life sciences research;

a workflow system associated with said portal and operable to allow a user to prescribe and track the performance of a series of steps associated with that user's life sciences research;

a data store of life sciences information accessible through said portal;

a product specifying system accessible through said portal and offering products useful in connection with the performance of said series of steps;

an indexing mechanism associated with said networked computer system that mediates relationships among said workflow system, said data store of life sciences information and said product specifying system.

10. A life sciences laboratory system, comprising:

at least one networked computer system that defines a virtual research environment accessible to a user through a portal associated with said networked computer system;

said computer system being configured according to a framework that defines a common communication interface to a plurality of different life sciences laboratory equipment;

said framework further defining a virtual laboratory equipment interface presented through said portal whereby said user may interact with selected ones of said plurality of different life sciences laboratory equipment.

11. The system of claim 10, further comprising an electronic catalog of available life sciences research related consumptibles accessible to the user.

12. The system of claim 10, further comprising a workflow subsystem operable to allow a user to prescribe and track the performance of a series of steps associated with that user's life sciences research.

13. The system of claim 10, further comprising an online workspace wherein a user may store and organize information relating to that user's life sciences research.

14. A life sciences workflow management system, comprising:

at least one networked computer system configured to provide a workflow interface to a user through a portal, said workflow interface operable to allow a user to prescribe and track the performance of a series of steps associated with life sciences research;

a data store associated with said networked computer system into which said user stores and organizes sets of user-specified data for bioinformatics processing;

at least one processor associated with said networked computer system that is configured to perform bioinformatics processing upon said user-specified data;

said workflow interface having a user interaction mechanism whereby said user can manipulate user-specified data stored in said data store and whereby said user can control the performance of said bioinformatics processing.

15. The system of claim 15, further comprising a plurality of predefined workflows whereby the user prescribe and track the performance of a series of steps associated with that user's life sciences research.

16. The system of claim 15, further comprising a workflow design interface having:

- a software object implementer whereby a user may instantiate and link modules representing stages of life sciences research in an ordered fashion; and

- a plurality of selectable interactive methods for importing, exporting, and processing user specified data according to user perceived requirements relating to procedures of life sciences research,

- wherein the user may import the methods into the stages in a prescribed order, thereby providing steps for completing a stage of life sciences research.

17. An information system providing a secure online environment for bioinformatics research, comprising:

- a user account datastore adapted to store information relating to status of users according to user identity;

- a user-identification module adapted to verify user identity;

- at least one bioinformatics processor adapted to access genomic data in accordance with user-specified criteria; and

- an access control module adapted to grant users of dissimilar status correspondingly dissimilar degrees of access to genomic data.

18. The system of claim 17, further comprising:  
a datastore of proprietary genomic data; and  
a datastore of public genomic data,  
wherein said access control module is adapted to restrict public access to the proprietary genomic data while granting public access to the public genomic data.

19. The system of claim 17, further comprising:  
a session manager adapted to instantiate a session with a user by exchanging encryption keys with the user; and  
an encryption subsystem adapted to facilitate encrypted communication with a user, thereby maintaining privacy of exchanged data and search queries.

20. The system of claim 17, further comprising a private workspace wherein a user can securely store and organize private information relating to life sciences research.

21. The system of claim 17, further comprising a public forum wherein users can share information relating to life sciences research.

22. The system of claim 17, further comprising at least one workflow providing step by step instructions to a user relating to life sciences research procedures.



23. The system of claim 17, further comprising a data coupling mechanism whereby a user may upload experimental results from a life sciences related instrument.

24. The system of claim 17, further comprising a data coupling mechanism whereby a user may configure and control a life sciences related instrument.

25. The system of claim 17, further comprising a consumptible identification mechanism adapted to identify life sciences related consumptibles based on genomic data accessed by the user.

26. The system of claim 17, further comprising a consumptible identification mechanism adapted to identify life sciences related consumptibles based on a user's position in a workflow.

27. The system of claim 17, further comprising a purchasing subsystem adapted to communicate life sciences related consumptibles to users, receive a user selection of a consumptible, and process a purchase of the consumptible by the user based on the user selection.